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11
12 **IN THE UNITED STATES DISTRICT COURT**
13 **FOR THE NORTHERN DISTRICT OF CALIFORNIA**
14 **OAKLAND DIVISION**

15 IPSILIUM LLC,
16
17 Plaintiff,
18 v.
19 CISCO SYSTEMS, INC.,
20 Defendant.

Case No. 4:17-cv-07179-HSG

**PLAINTIFF IPSILIUM LLC'S OPENING
CLAIM CONSTRUCTION BRIEF**

Date: December 12, 2018
Time: 1:00 p.m.
Court: 2, 4th Floor

Hon. Haywood S. Gilliam, Jr.

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11	35 U.S.C. § 112 ¶ 2	6
12	35 U.S.C. § 112 ¶ 6	6

Pursuant to Pat. L.R. 4-5(A) and the Scheduling Order (Dkt. No. 29), Plaintiff Ipsilium LLC ("Ipsilium") provides this Memorandum of Points And Authorities in Support of its Proposed Constructions of the Claim Terms and Limitations in Dispute.

I. OVERVIEW OF PATENTS AND TECHNOLOGY

Ipsilium's patents-in-suit grew out of the innovative work by Dr. Hariharasubrahmanian, an Ipsilium owner and Bay Area resident currently working at Oracle Labs. In 1999, Dr. Hariharasubrahmanian took the smallest commercially available microcontroller, the PIC 12C508 microcontroller which at the time had limited use controlling home appliances, and made it internet accessible using only 256 instructions. His accomplishment was lauded worldwide. For example, Popular Science Magazine described his computer as the "smallest computer ever built" that also "understands TCP/IP". Ex. L¹. Science Daily described it as "the world's smallest" computer that is the size of a "match-head" while being "fully compliant with the requirements of the [TCP/IP] standards." Ex. M.



Dr. Hariharasubrahmanian's "iPic" – the size of a match-head

Dr. Hariharasubrahmanian was able to perform the TCP/IP protocols on such a tiny device with only 256 instructions because he envisioned a novel and superior way to handle that processing. At the time, the standard method required receiving the entire packet and then processing it using the actual received values. Dr. Hariharasubrahmanian overcame this limitation by developing a technique for predicting the values of packet fields and using the predicted value(s) to perform the necessary processing rather than processing with the actual value(s). This

¹ All Exhibits are attached to the Declaration of Sean DeBruine concurrently filed.

1 groundbreaking innovation not only made hardware resources limitations all but irrelevant, it
 2 provided another highly-desirable benefit to the performance of such devices - it was extremely
 3 fast.

4 Dr. Hariharasubrahmanian co-founded Ipsil, Inc. to further develop and commercialize
 5 products based on his concepts. Ipsil received significant investment funding and entered into
 6 development agreements with several leading technology companies. Using Dr.
 7 Hariharasubrahmanian's inventions, Ipsil was able to demonstrate reliable and efficient network
 8 processors running at 10 Gigabit per second ethernet speeds – a five-fold improvement over the 2
 9 Giabit per second speed considered “fast” at the time. Despite demonstrating its superior
 10 technology in both the commercial and government sectors, Ipsil was unable to survive the
 11 technology recession and ceased operations in 2006. Dr. Hariharasubrahmanian received several
 12 patents related to his work, two of which are asserted in this matter.

13 **A. U.S. Patent No. 6,819,681**

14 Ipsilium's 681 Patent claims priority to Ipsilium's provisional 60/147,764 (“Provisional
 15 Application”) and has 13 independent apparatus claims (with 44 dependent claims) directed to
 16 systems and methods for predicting header field value(s) of a packet and processing the packet
 17 using predicted value(s). Ex. A.

18 **B. U.S. Patent No. 6,961,777**

19 Ipsilium's 777 Patent also claims priority to Ipsilium's Provisional Application and has
 20 16 independent apparatus claims (with 41 dependent claims) directed to systems and methods for
 21 predicting header field value(s) of a packet, predicting how upper level protocols will process the
 22 packet, and processing the packet using predicted value(s). Ex. B.

23 **II. BRIEF OVERVIEW OF NETWORKING TECHNOLOGY**

24 Modern networks, such as TCP/IP networks, transmit data in “packets.” Unlike circuit-
 25 switched networks (such as traditional telephone networks) that transmit data sequentially over a
 26 dedicated circuit that is established for a particular communications session, packet-switched
 27 networks break data up into pieces, package those pieces within separate packets, and transmit the
 28 packets over a network of shared resources.

A packet typically includes some or all of the data making up the actual data to be transferred, for example a computer file constituting a photograph, a document or the like. All but the smallest of files will be split among several packets. Each packet must include all the information necessary to ensure successful transmission and reassembly of the original file at the destination node. Therefore, a packet will typically include not only all or a portion of the transmitted data (i.e. the “payload”), but also information such as the source and destination network addresses for the packet, sequencing information, error detection information, and any other information that might be required for transmission. This additional information is typically included in one or more headers and/or trailers. Such a packet, comprising a payload, one or more headers, and (optionally) one or more trailers, is formed through a modular process called “encapsulation” that involves a series of steps associated with different “layers,” as shown in Fig. 3 of the ’681 and ’777 Patents:

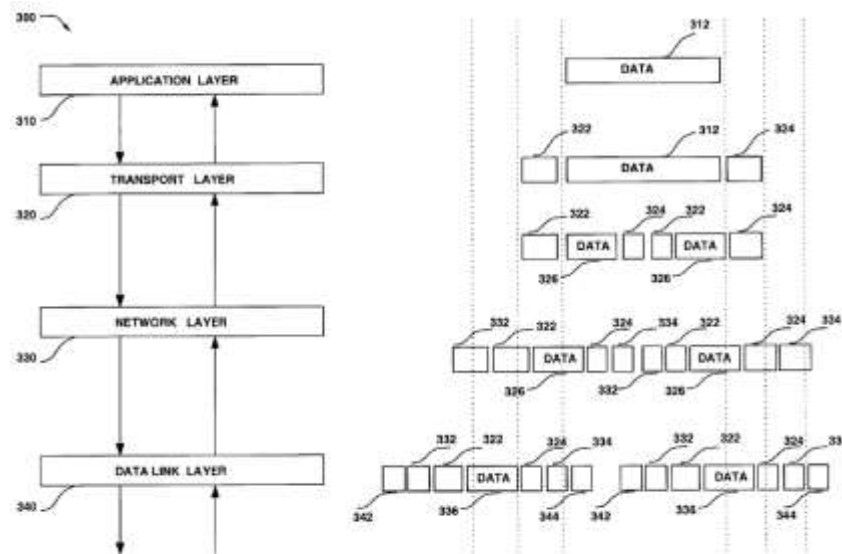


FIG. 3

Each of these layers is associated with one or more “protocols,” each protocol providing rules pertaining to one aspect of communications among networked devices. Field values are generated at, for example, the transport layer 310, and at each successive step (i.e. at each successive layer of the protocol), information in the form of a header (e.g. 322) and/or a trailer (e.g., 324), is appended to the data, thereby “encapsulating” it. This process of appending additional headers and/or trailers is performed for each successive layer until all the information

1 necessary for successful network transmission is added to the packet. Thereafter the packet is
2 transmitted.

3 The packet recipient(s) work to "decapsulate" the packet and obtain the header and trailer
4 fields for each layer in reverse order, information the receiving device uses to process the packet.
5 Based on that processing, a decision is made. For example, the decision may be to store the data
6 for use in reconstructing the original file or to generate a packet in response to the received packet.

7 **III. LEGAL STANDARDS**

8 **A. Claim Construction**

9 Claim construction is a question of law to be determined by the Court. *See Markman v.*
10 *Westview Instruments, Inc.*, 52 F.3d 967, 979 (Fed. Cir. 1995), *aff'd*, 517 U.S. 370 (1996). The
11 purpose of claim construction is to determine the meaning and scope of the patent claims asserted
12 to be infringed. “[T]he words of a claim are generally given their ordinary and customary
13 meaning ... [which is] the meaning that the term would have to a person of ordinary skill in the art
14 ... at the time of the invention.” *Phillips v. AWH Corp.*, 415 F.3d 1303, 1312-13 (Fed. Cir. 2005)
15 (internal citations and quotation marks omitted). The patent specification “is always highly
16 relevant to the claim construction analysis. Usually, it is dispositive; it is the single best guide to
17 the meaning of a disputed term.” *Vitronics Corp. v. Conceptronic, Inc.*, 90 F.3d 1576, 1582 (Fed.
18 Cir. 1996). In addition to the specification, a court should consider the prosecution history. *See*
19 *Markman*, 52 F.3d at 980.

20 The Court may also consider extrinsic evidence—technical dictionaries, learned treatises,
21 expert and inventor testimony, and the like—to help construe the claims. *Phillips*, 415 F.3d at
22 1317-18. For example, dictionaries may reveal what the ordinary and customary meaning of a
23 term would have been to a person of ordinary skill in the art at the time of the invention. *Frans*
24 *Nooren Afdichtingssystemen B.V. v. Stopaq Amcorr Inc.*, 744 F.3d 715, 722 (Fed. Cir. 2014)
25 (“Terms generally carry their ordinary and customary meaning in the relevant field at the relevant
26 time, as shown by reliable sources such as dictionaries, but they always must be understood in the
27 context of the whole document—in particular, the specification (along with the prosecution
28 history, if pertinent).”). Extrinsic evidence is, however, “less significant than the intrinsic record

1 in determining the legally operative meaning of claim language.” *Phillips*, 415 F.3d at 1317
 2 (internal quotation marks omitted).

3 **B. Preambles Not Limiting**

4 “Whether to treat a preamble term as a claim limitation is determined on the facts of each
 5 case in light of the claim as a whole and the invention described in the patent.” *Am. Med. Sys.,*
 6 *Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1358 (Fed. Cir. 2010) (internal quotations and citations
 7 omitted). In general, “the preamble does not limit the claims” unless “it recites essential structure
 8 or steps or if it is necessary to give life, meaning, and vitality to the claim.” *Id.* A preamble is not
 9 limiting “when the claim body describes a structurally complete invention such that deletion of the
 10 preamble phrase does not affect the structure or steps of the claimed invention.” *Catalina Mktg.*
 11 *Int’l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801, 809 (Fed. Cir. 2002). A preamble that is
 12 “reasonably susceptible to being construed to be merely duplicative of the limitations in the body
 13 of the claim (and was not clearly added to overcome a rejection)” is not a separate limitation
 14 because “in general, the purpose of a claim preamble is to give context for what is being described
 15 in the body of the claim.” *Symantec Corp. v. Computer Associates Int’l, Inc.*, 522 F.3d 1279,
 16 1288-89 (Fed. Cir. 2008). However, “clear reliance on the preamble during prosecution to
 17 distinguish the claimed invention from the prior art transforms the preamble into a claim limitation
 18 because such reliance indicates use of the preamble to define, in part, the claimed invention.”
 19 *Catalina*, 289 F.3d at 808.

20 **C. “Means-plus-function” claims**

21 Construction of a means-plus-function limitation includes two steps. “First, the court must
 22 determine the claimed function. Second, the court must identify the corresponding structure in the
 23 written description of the patent that performs the function.” *Applied Med. Res. Corp. v. U.S.*
 24 *Surgical Corp.*, 448 F.3d 1324, 1332 (Fed.Cir.2006) (internal citations omitted). A structure
 25 disclosed in the specification qualifies as a “corresponding structure” if the specification or the
 26 prosecution history “clearly links or associates that structure to the function recited in the claim.”
 27 *B. Braun Med., Inc. v. Abbott Labs.*, 124 F.3d 1419, 1424 (Fed.Cir.1997). Moreover, a general
 28 purpose processor is sufficient structure for functions that can be achieved by any general purpose

computer without special programming. *See In re Katz Interactive Call Processing Patent Litigation*, 639 F.3d 1303, 1316 (Fed. Cir. 2011). To the extent a patent discloses the implementation of functionality through hardware, software, or a combination of both, the full scope of a means-plus-function limitation should cover all such implementations and not just the implementation in pure software on a general purpose computer. *See* MPEP § 2181 II(b).

D. Indefiniteness

“[A] patent is invalid for indefiniteness if its claims, read in light of the specification delineating the patent, and the prosecution history, fail to inform, with reasonable certainty, those skilled in the art about the scope of the invention.” *Nautilus, Inc. v. Biosig Instruments, Inc.*, 134 S. Ct. 2120 (2014). That definiteness standard “mandates clarity, while recognizing that absolute precision is unattainable.” *Id.* at 2129. A means-plus-function claim limitations must satisfy the definiteness requirement of § 112 ¶ 2. *S3 Inc. v. nVIDIA Corp.*, 259 F.3d 1364, 1367 (Fed. Cir.2001). Under 35 U.S.C. § 112 ¶ 2 and ¶ 6, “a means-plus-function clause is indefinite if a person of ordinary skill in the art would be unable to recognize the structure in the specification and associate it with the corresponding function in the claim.” *All-Voice Computing PLC v. Nuance Commc’ns., Inc.*, 504 F.3d 1236, 1241 (Fed. Cir.2007) (citing *Atmel Corp. v. Info. Storage Devices, Inc.*, 198 F.3d 1374, 1381-82 (Fed.Cir.1999)). As with all challenges to the validity of the patent claims, Cisco bears the burden of proof by clear and convincing evidence. *Biosig Instruments, Inc. v. Nautilus, Inc.*, 783 F.3d 1374, 1377 (Fed. Cir. 2015) *cert. denied* 136 S.Ct. 569 (2015).

IV. “REPLY PACKET”

Ipsilium’s Proposed Construction	Cisco’s Proposed Construction
packet in response to a received packet	“Responsive packet directed to received field’s source”

The claim term “reply packet” is used in independent claims 2, 18, 31, 44, 49, 54, and 55 of the ’681 Patent and independent claims 44, 49, 54, and 55 of the ’777 Patent.

Ipsilium agrees with Cisco’s proposed construction to the extent the construction is limited

1 to “responsive packet.” However, Cisco then adds the additional language “directed to received
 2 field’s source” in an apparent attempt to add limitations to this term. That limiting definition
 3 should be rejected. Ipsilium’s proposed construction is consistent with the language used in the
 4 claims and the intrinsic evidence. For example, several dependent claims of the ’681 Patent make
 5 clear that the “reply packet” limitation consists of “reply information *in response to the* [received]
 6 *packet ...*” consistent with Ipsilium’s construction. ’681 Patent at Claims 31 (emphasis added),
 7 *see also* claim 23; ’777 Patent at Claim 22 (same). Ipsilium’s proposed construction is also
 8 consistent with the patent’s written description. The Provisional Application, incorporated by
 9 reference into both patents, describes the invention as enabling a network device to “transmit[] its
 10 *response to a data packet it receives* before it has completed receiving the packet in its entirety.”
 11 Provisional Application at 3 (emphasis added); *see also id.* at Title (“Method and Apparatus for
 12 Improved Response in Data Communication”). Further, the ’681 and ’777 Patents’ specifications
 13 also describe the invention as “generating response to packets” before those packets are received.
 14 ’681 Patent at 3:23-27; ’777 Patent at 2:36-41. The detailed description of the that processing
 15 concludes by stating “the processor 220 may begin preparing a reply packet based on the received
 16 and predicted fields and begin transmitting the reply packet to the destination (e.g. communication
 17 device 110.)” ’681 at 9:39-42.

18 Ipsilium also disagrees with the additional limitations Cisco proposes requiring that the
 19 packet be “directed to received field’s source.” Cisco’s proposed additional requirements find no
 20 support in the claims, intrinsic evidence, or extrinsic evidence and therefore should be rejected.
 21 Focusing first on the claims, the starting point for claim construction analysis, none of the claims
 22 at issue includes any of the limitations Cisco proposes above, as the proposed restrictions of
 23 “directed to” and “received field’s source” are absent from each of the claims. Instead, as
 24 explained above, the dependent claims require that the reply packet is “reply information *in*
 25 *response to the* [received] *packet ...*” without *any* limitation as to *where* the packet is “directed.”
 26 ’681 Patent at Claim 31; 777 Patent at Claim 22.

27 Next, there is also no support for Cisco’s proposed additional restrictions within the
 28 specification or file history. First, the term “directed” is absent entirely from the specification and

file history. Second, Cisco provides no explanation for what “received field’s source” means. While the specification refers to a packet as having multiple different “source” fields (e.g., “source . . . MAC address”, “source port field”, and “source address”), Cisco provides no restriction as to which of these fields, if any, the jury is required to find present to meet the additional limitation it proposes. Cisco’s construction, if adopted, would add ambiguity requiring the jury to perform the additional step of construing Cisco’s additional limitations. *O2 Micro Int’l Ltd. v. Beyond Innovation Tech. Co. Ltd.*, 521 F.3d 1351, 1360 (Fed. Cir. 2008) (“When the parties raise an actual dispute regarding the proper scope of these claims, the court, *not the jury*, must resolve that dispute.”).

Further, the specification does not limit the reply packet as proposed by Cisco and instead expressly states to the contrary that: “the processor 220 may begin preparing a reply packet based on the received and predicted fields and begin transmitting the reply packet to the *destination* (e.g., *a communication device 110*)”. ’681 Patent at 9:38-42; ’777 Patent at 8:5-9 (emphasis added). That is, as Fig. 1, reproduced below, shows multiple communication devices 110, the patent does not limit the reply to a specific device.

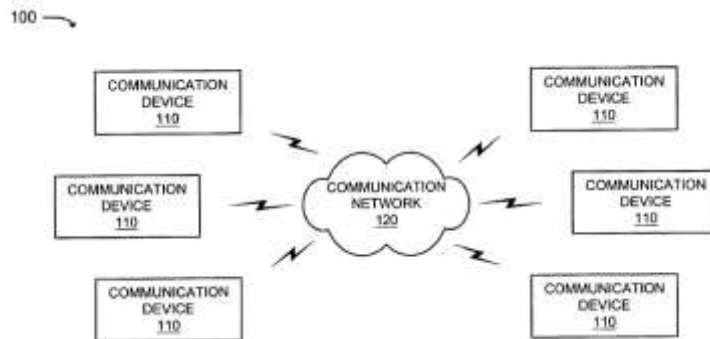


FIG. 1

Finally, Cisco’s proposed construction is also inconsistent with the extrinsic evidence. Contemporaneous dictionaries at the time of the invention confirm that a person of ordinary skill in the art would not understand a “reply packet” to be limited to the “received field’s source”. Ex. H, McGraw-Hill Electronics Dictionary, p. 451 (5th ed. 1994) (defining reply as “An RF signal or combination of signals transmitted by a responder in response to an interrogation. It is also called

response.”); Ex. I, The American Heritage College Dictionary, p. 1158 (3rd ed. 1997) (defining reply as “to give an answer in speech or writing” or “to respond by an act or a gesture”); Ex. J, Dictionary of Information Technology (3rd ed. 2002) (defining respond as “to reply or to react because of something”). Ipsilium’s proposed construction should be adopted.

V. MEANS PLUS FUNCTION LIMITATIONS PER 35 U.S.C. §112 ¶6

(’681 Patent, Claim 16; ’777 Patent, Claim 16)

A. “Means for obtaining one of the fields of the packet”

Ipsilium’s Proposed Construction	Cisco’s Proposed Construction
<p>Function: obtaining one of the fields of the packet</p> <p>Structure: a communication interface (any transceiver-like mechanism that enables the communication device to communicate with the other devices and systems on the network), and a processor or microprocessor executing instructions, hardwired circuitry, or silicon via combination of logic gates.</p> <p>Further, to the extent the disclosed structure is a processor or microprocessor executing instructions and that structure is held to require a corresponding algorithm, the algorithm disclosed by the specification is:</p> <ul style="list-style-type: none"> • ’681 Patent at Fig. 7A, 9, and 10 and accompanying specification descriptions, 8:33-42 • Provisional at Fig. 4 and accompanying descriptions • ’777 Patent at Fig. 7A and accompanying specification descriptions, 7:32-34 	<p>Function: obtaining one of the fields of the packet</p> <p>Structure: the “communication interface” disclosed at Col. 4:60-61.</p>

This means-plus-function element is identical in claim 16 in both the ’681 and the ’777 patent. The parties agree that the function required by this element is “obtaining one of the fields

1 of the packet.” Cisco identifies the “communication interface” 260 as described in the ’681 Patent
2 at 4:60-61 and the ’777 patent at 4:7-8. While the communication interface 260 is part of the
3 disclosed structure, Cisco’s construction is incomplete and omits the processor, microprocessor,
4 hardwired circuitry, or silicon via combination of logic gates as disclosed in Ipsilium’s
5 specifications.

6 Starting with the claims, Cisco’s proposed construction for structure omits the structure
7 disclosed in other claims of both patents. *See In re Benno*, 768 F.2d 1340, 1346 (finding that
8 claims are part of the disclosure). For example, Cisco’s proposed construction omits the
9 “processor” structure, but claim 49 of the ’681 Patent claims that a processor executes instructions
10 “for obtaining one or more fields of the packet” clearly linking the processor structure with the
11 function. *See also* ’777 Patent at Claim 30 (same). As another example, Cisco’s proposed
12 construction omits the “logic” structure, but claim 57 of the ’681 Patent claims that structural
13 “logic” is “configured to receive one or more fields of the packet” clearly linking the logic
14 structure with the function. Cisco’s proposed construction would omit the structure claimed in
15 Ipsilium’s patents and should therefore be rejected.

16 Next, the specification discloses that the communication interface with the processor
17 performs this function, linking the processor as the function. *See e.g.*, ’681 Patent at Fig. 7A
18 (“Processor receives each field”); *see also* ’777 Patent at Fig. 7A; Menasce Decl. ¶ 22. Like claim
19 57, the specification further explains that the functions performed by the processor can be
20 implemented as hardwired circuitry or in silicon via a combination of logic gates also linking these
21 structures to the function. *See* ’681 Patent at 5:34-47; ’777 Patent at 4:50-60. To the extent a
22 patent discloses the implementation of functionality through hardware, software, or a combination
23 of both, the full scope of a means-plus-function limitation should cover all such implementations
24 and not just the implementation in pure software on a general purpose computer. *See* MPEP §
25 2181 II(b). Moreover, the further disclosure of an algorithm is only required when the structure is
26 a general purpose computer, not hardware, such as hardwired circuitry or silicon via a combination
27 of logic gates. *See In re Katz*, 639 F.3d at 1316.

For the processor structure, the specification discloses a sufficient algorithm. *See* '681 Patent at Fig. 7A, Step 710, 8:39-41; '777 Patent at Fig. 7A, 7:30-33. However, such disclosure of a specific algorithm is unnecessary when the functions are generic and do not require special programming. *In re Katz*, 639 F.3d 1303 at 1316 ("As such, it was not necessary to disclose more structure than the general purpose processor that performs those functions. Those seven claims do not run afoul of the rule against purely functional claiming, because the functions of "processing," "receiving," and "storing" are coextensive with the structure disclosed, i.e., a general purpose processor."). It is well-known in the art that the function of "obtaining a field" is generic. *Menasce Decl.*, ¶23. For example, Cisco's own U.S. Patent No. 6,985,964 ("Cisco '964 Patent") discloses that "[c]entral processor 110 receives packets through any of a number of means well-known in the art." *See* Ex. E, Cisco '964 Patent at 2:28-29; *Menasce Decl.*, ¶ 23. Accordingly, one of ordinary skill in the art would understand that any general purpose computer processor, which could also be implemented as hardwired circuitry or in silicon via a combination of logic gates, could perform this function. *Menasce Decl.*, ¶21-24. Ipsilium's proposed construction includes all of the structure the patents associated with this function and should therefore be adopted.

B. "Means for Determining the value of the obtained field"

Ipsilium's Proposed Construction	Cisco's Proposed Construction
<p>Function: determining a first value of the obtained field</p> <p>Structure: a processor or microprocessor executing instructions, hardwired circuitry, or silicon via combination of logic gates.</p> <p>Further, to the extent the disclosed structure is a processor or microprocessor executing instructions and that structure is held to require a corresponding algorithm, the algorithm disclosed by the specification is:</p> <ul style="list-style-type: none"> '681 Patent at Fig. 7A, 9, and 10 	<p>Function: determining a first value of the obtained field</p> <p>Structure: Indefinite for failing to disclose a structure that performs the claimed function.</p>

Ipsilium's Proposed Construction	Cisco's Proposed Construction
and accompanying specification descriptions; 8:42-44 <ul style="list-style-type: none"> • Provisional Application at Fig. 4 and accompanying description • '777 Patent at Fig. 7A and accompanying specification description; 7:32-34 	

Claim 16 of the '681 patent includes the limitation "means for determining a first value of the obtained field" while claim 16 of the '777 patent recites "means for determining the value of the obtained field." The parties agree that the required function is "determining a first value of the obtained field" ('681 patent) and "determining a value of the obtained field" ('777 patent). Ipsilium identifies the structure disclosed to perform these functions, while Cisco now contends that these limitations are indefinite.

As an initial matter, Cisco's new invalidity theory should not be considered by the Court. Cisco recently served Amended Invalidity Contentions, on August 10, 2018. Cisco did not contend that claim 16 in either patent is invalid based on the alleged indefiniteness of these claim limitations. DeBruine Decl., Ex. K (Cisco Amd. Invalidity Contentions). Cisco's attempt to raise an invalidity argument during claim construction not disclosed in its Pat. L.R. 3-3(d) disclosures violates this Court's rules. "Invalidity contentions must also include '[a]ny grounds of invalidity based on' 35 U.S.C. § 112(b). Pat. L.R. 3-3(d). *Hewlett Packard Co. v. ServiceNOW, INC.*, slip op. Case No. 14-cv-00570-BLF (HRL) N.D. Ca. February 19, 2016. "[T]he disclosure requirements of this district's patent local rules are not optional, and the failure to consistently and clearly articulate a party's invalidity challenges without justification at each demarcated step dooms any effort to revive them later in the case." *Silicon Labs., Inc. v. Cresta Techs. Corp.*, N.D. Ca. March 1, 2016, Case No. 14-cv-03227-PSG. Cisco did not disclose this basis for invalidity and may not raise it now.

Even if the Court were to consider Cisco's new argument, it would fail. Starting with the claims, claim 17 of the '681 Patent claims that a processor "determine[s] a first value of at least one of the received fields" clearly linking the clearly linking the processor structure with the

1 function. *See also* '777 Patent at Claim 17. Likewise, claim 57 of the '681 Patent claims that
 2 structural “logic” is configured to “determine a first value of at least one of the received fields”
 3 clearly linking the logic structure with the function. *See also* '777 Patent at Claim 57. Cisco
 4 ignores the structure claimed in Ipsilium’s claims and should therefore not be adopted. *See In re*
 5 *Benno*, 768 F.2d at 1346 (finding that claims are part of the disclosure).

6 Next consistent with the claims, the specification states that the processor performs this
 7 function linking the processor structure to the function. *See* '681 Patent at Fig. 7A (“Processor
 8 receives each field and analyzes value in field”); *see also* '777 Patent at Fig. 7A; Menasce Decl. ¶
 9 26. Like claim 57, the specification further explains that the functions performed by the processor
 10 can be implemented as hardwired circuitry or in silicon via a combination of logic gates also
 11 linking these structures to the function. *See* '681 Patent at 5:34-47; '777 Patent at 4:50-60. To the
 12 extent a patent discloses the implementation of functionality through hardware, software, or a
 13 combination of both, the full scope of a means-plus-function limitation should cover all such
 14 implementations and not just the implementation in pure software on a general purpose computer.
 15 *See* MPEP § 2181 II(b). Moreover, the further disclosure of an algorithm is only required when
 16 the structure is a general purpose computer, not hardware, such as hardwired circuitry or silicon
 17 via a combination of logic gates. *See In re Katz*, 639 F.3d at 1316.

18 For the processor structure, the specification discloses a sufficient algorithm. *See* '681
 19 Patent at Fig. 7A, 8:39-41; '777 Patent at Fig. 7A, 7:30-32. However, such disclosure of a specific
 20 algorithm is unnecessary when the functions are generic and do not require special programming.
 21 *See In re Katz*, 639 F.3d 1303 at 1316. It is well-known in the art that the function of
 22 “determining a value” is generic. Menasce Decl., ¶26-27. For example, Cisco’s own U.S. Patent
 23 No. 6,515,963 (“Cisco ’963 Patent”) discloses that “[o]ther datagram formats are accommodated
 24 simply by determining the type of datagram received by methods well-known in the art, such as
 25 reading identifying data from the header” *See* Ex. F, Cisco ’963 Patent at 6:61-64 (emphasis
 26 added); Menasce Decl., ¶ 25-27. Accordingly, one of ordinary skill in the art would understand
 27 that any general purpose computer processor, which could also be implemented as hardwired
 28 circuitry or in silicon via a combination of logic gates, could perform this function. Menasce

Decl., ¶¶26-27. Thus, this claim is not indefinite, and the Court should adopt Ipsilium's construction.

C. “Means for predicting how the packet will be processed . . .”

Ipsilium's Proposed Construction	Cisco's Proposed Construction
<p>Function: predicting a second value of one or more other fields of the packet based on a correlation between the first value and a property of one or more other fields before the one or more other fields are obtained</p> <p>Structure: a processor or microprocessor executing instructions, hardwired circuitry, silicon via combination of logic gates.</p> <p>Further, to the extent the disclosed structure is a processor or microprocessor executing instructions and that structure is held to require a corresponding algorithm, the algorithm disclosed by the specification is:</p> <ul style="list-style-type: none"> • '681 Patent at Fig. 7A, 9, and 10 and accompanying specification descriptions; 7:38-8:11; 8:44-9:36 • Provisional Application at Fig. 4 and accompanying descriptions; IP000225-226; IP000228-230 • '777 Patent at Fig. 7A-7B, 9-10 and accompanying spec descriptions; 7:33-8:3 	<p>Function: predicting a second value of one or more other fields of the packet based on a correlation between the first value and a property of one or more other fields before the one or more other fields are obtained</p> <p>Structure: Predicting “due to fragmentation” and predicting due to Segmentation,” as disclosed in Cols. 8:64-9:7, and 9:18-32.</p>

Claim 16 the 681 patent includes the limitation “means for predicting a second value of one or more other fields of the packet based on a correlation between the first value and a property of one or more other fields before the one or more other fields are obtained” ('681 patent). Claim 16 in the '777 patent has the very similar limitation “means for predicting how the packet will be

1 processed by upper level protocols, application protocols or both based on the value of the
2 obtained field and further predicting a value of at least one other field of the packet not yet
3 received based on the prediction of how the packet will be processed.” The parties do not dispute
4 the functions required by these limitations. Again, the parties disagree as to the scope of the
5 corresponding structure disclosed in the patents. Again, Cisco’s identification of structure is
6 incomplete, omitting algorithms, hardwired circuitry, and silicon via combination of logic gates.

7 Starting with the claims, claim 57 of the ’681 Patent claims that structural “logic” is
8 configured to “predict a second value based ...” clearly linking the logic structure with the
9 function. *See also* ’777 Patent at Claim 57. Cisco ignores the “logic” structure claimed in
10 Ipsilium’s claims and should therefore not be adopted. *See In re Benno*, 768 F.2d at 1346 (finding
11 that claims are part of the disclosure).

12 Next, the specification states that the processor, which the parties agree is the structure for
13 this limitation, can be implemented as hardwired circuitry or in silicon via a combination of logic
14 gates, also linking these hardware structures to this function. *See* ’681 Patent at 5:34-47; ’777
15 Patent at 4:50-60. To the extent a patent discloses the implementation of functionality through
16 hardware, software, or a combination of both, the full scope of a means-plus-function limitation
17 should cover all such implementations and not just the implementation in pure software on a
18 general purpose computer. *See* MPEP § 2181 II(b). Moreover, the further disclosure of an
19 algorithm is only required when the structure is a general purpose computer, not hardware, such as
20 hardwired circuitry or silicon via a combination of logic gates. *See In re Katz*, 639 F.3d at 1316.

21 For the processor structure, the specification discloses algorithms beyond those identified
22 by Cisco. In addition to the algorithms Cisco cites, the Provisional Application, incorporated by
23 reference into both patents’ disclosures, further discloses an algorithms for predicting fields due to
24 “IP packet length.” Ex. C, Provisional App., at IP000228-229. The claims further disclose a
25 predicting algorithm according to the “sequence number” and the “total length” fields. *See* ’681
26 Patent at Claim 56; ’777 Patent at Claim 56. Cisco’s proposed construction fails to consider those
27 disclosure and is therefore incomplete and erroneous. Ipsilium’s proposed construction includes
28 all of the structure the patents associated with this function and should therefore be adopted.

D. “Means for processing the packet . . . “

Ipsilium’s Proposed Construction	Cisco’s Proposed Construction
<p>Function: processing the packet based on the obtained field and the predicted one or more other fields/ processing the packet based on at least the obtained field and the predicted at least one other fields</p> <p>Structure: a processor or microprocessor executing instructions, hardwired circuitry, or silicon via combination of logic gates.</p> <p>Further, to the extent the disclosed structure is a processor or microprocessor executing instructions and that structure is held to require a corresponding algorithm, the algorithm disclosed by the specification is:</p> <ul style="list-style-type: none"> • ’681 Patent at Fig. 7A, 7B and accompanying specification descriptions; 9:37-9:43 • Provisional at Title; at 3-8; IP000223-230; Fig. Fig. 4 and accompanying descriptions • ’777 Patent at Fig. 7A, 7B, 9-10 and accompanying spec descriptions; 8:4-11; 8:47-51 	<p>Function: processing the packet based on the obtained field and the predicted one or more other fields/ processing the packet based on at least one other fields</p> <p>Structure: Indefinite for failing to disclose a structure that performs the claimed function.</p>

Claims 16 of the ’681 patent and the ’777 patent include the limitation “means for processing the packet based on the obtained field and the predicted one or more other fields” (’681 patent) and “means for processing the packet based on at least the obtained field and the predicted at least one other fields” (’777 patent). The parties agree on the required function and do not contend that the slight difference in wording affects the identification of corresponding structure. Cisco again contends that there is insufficient structure disclosed, rendering the claim invalid as indefinite. Cisco is again mistaken.

Starting with the claims, Cisco's proposed construction for structure omits the structure disclosed in other claims of both patents. For example, Cisco's proposed construction omits a "processor" structure, but claim 18 of the '681 Patent claims that a processor executes instructions "to process the packet based on ..." clearly linking the processor structure with the function. *See also* '777 Patent at Claim 17 (same). As another example, Cisco's proposed construction omits a "logic" structure, but claim 57 of the '681 Patent claims that structural "logic" is "configured to process the packet based on ..." clearly linking the logic structure with the function. Cisco ignores the structure claimed in Ipsilium's patents and should be rejected. *See In re Benno*, 768 F.2d at 1346 (finding that claims are part of the disclosure).

Next consistent with the claims, the specification states that the processor performs this function, linking the processor structure to the function. *See e.g.*, '681 Patent at Fig. 7A ("Processor processes packet as necessary"); *see also* '777 Patent at Fig. 7A; Menasce Decl. ¶ 29. Like claim 57, the specification further explains that the functions performed by the processor can be implemented as hardwired circuitry or in silicon via a combination of logic gates also linking these structures to the function. *See* '681 Patent at 5:34-47; '777 Patent at 4:50-60. To the extent a patent discloses the implementation of functionality through hardware, software, or a combination of both, the full scope of a means-plus-function limitation should cover all such implementations and not just the implementation in pure software on a general purpose computer. *See* MPEP § 2181 II(b). Moreover, the further disclosure of an algorithm is only required when the structure is a general purpose computer, not hardware, such as hardwired circuitry or silicon via a combination of logic gates. *See In re Katz*, 639 F.3d at 1316.

For the processor structure, the specification discloses a sufficient algorithm, including the processing of packets done according to well-known, industry standard networking protocols, such as the Transmission Control Protocol. Menasce Decl., ¶¶28-29; 681 Patent at 4:35-41, Fig. 7A, Step 720, 725; '777 Patent at 3:47-55, Fig. 7A. However, such disclosure of a specific algorithm is unnecessary when the functions are generic and do not require special programming. *In re Katz*, 639 F.3d 1303 at 1316 ("As such, it was not necessary to disclose more structure than the general purpose processor that performs those functions. Those seven claims do not run afoul of the rule

1 against purely functional claiming, because the functions of "processing," "receiving," and
 2 "storing" are coextensive with the structure disclosed, i.e., a general purpose processor.”). It is
 3 well-known in the art that the function of “processing a packet” is generic. Menasce Decl., ¶28-
 4 29. For example, Cisco’s own U.S. Patent No. 6,724,721 (“Cisco ’721 Patent”) discloses that
 5 “[p]acket processing then proceeds according to conventional means well-known in the art.” See
 6 Ex. G, Cisco ’721 Patent at 10:45-46. Accordingly, one of ordinary skill in the art would
 7 understand that any general purpose computer processor, which could also be implemented as
 8 hardwired circuitry or in silicon via a combination of logic gates, could perform this function.
 9 Menasce Decl., ¶26-27. Thus, this claim is not indefinite, and the Court should adopt Ipsilium’s
 10 construction.

11 **VI. “PREDICTING A [SECOND] VALUE/FIELD ...” AND “BASED ON A**
 12 **CORRELATION ...”**

Ipsilium’s Proposed Construction	Cisco’s Proposed Construction
Ipsilium’s position is that no construction is needed. Ipsilium is unclear as to what part of the phrase Cisco is proposing as needing construction.	“predicting a [second] value of at least one other field of the packet before that field is received” <i>(with minor variations as necessary to account for slight differences in claim language)</i>
Ipsilium’s Proposed Construction	Cisco’s Proposed Construction
Ipsilium’s position is that no construction is needed. Ipsilium is unclear as to what part of the phrase Cisco is proposing needing construction.	“based on a correlation between the first received value and a property of the not yet received field”

21 None of the different variations of the “predicting a [second] value/field ... ” and “based
 22 on a correlation ...” limitations require a construction because there is no actual dispute. The
 23 claim language is clear on its face, and it is black letter law that courts “indulge a ‘heavy
 24 presumption’ that a claim term carries its ordinary and customary meaning.” *CCS Fitness, Inc. v.*
 25 *Brunswick Corp.*, 288 F.3d 1359, 1366, (Fed. Cir. 2002). Indeed, “[a]bsent a special and
 26 particular definition,” these limitations are to be given their plain and ordinary meaning, and no
 27 such definition exists here. See *Renishaw PLC v. Marposs Societa Per Azioni*, 158 F.3d 1243,
 28 1249 (Fed. Cir. 1998). Thus, these limitations should not be construed.

1 Instead of proposing a clarified definition, Cisco appears to be lumping different claim
 2 limitations together with proposals that add no further clarity. This is improper for multiple
 3 reasons. To start, not only does Cisco fail to identify individual “terms” as required by Local
 4 Patent Rule 4-1, but in doing so only confuses what is actually being construed. Moreover, the
 5 spanning of multiple claims raises the doctrine of claim differentiation, “the common sense notion
 6 that different words or phrases used in separate claims are presumed to indicate that the claims
 7 have different meanings and scope.” *Karlin Tech. Inc. v. Surgical Dynamics, Inc.*, 177 F.3d 968,
 8 971-72 (Fed.Cir.1999). Here, Cisco bears the burden to overcome this presumption, and the
 9 purpose of its proposed construction is unclear. It appears that Cisco generally proposes
 10 interchanging the commonly-used terms “not yet” and the term “before.” But this is both arbitrary
 11 and unnecessary. Indeed, the Federal Circuit has repeatedly found that when terms are non-
 12 technical and within the common parlance of an average juror, there is no actual dispute and
 13 therefore no need for court intervention. *See, e.g., Summit 6, LLC v. Samsung Elecs. Co.*, 802
 14 F.3d 1283, 1291 (Fed. Cir. 2015) (finding that the district court did not err in declining to construe
 15 terms that are “comprised of commonly used terms; each is used in common parlance and has no
 16 special meaning in the art”); *ActiveVideo Networks, Inc. v. Verizon Commc’ns, Inc.*, 694 F.3d
 17 1312, 1326 (Fed. Cir. 2012) (finding that the district court did not err in finding “superimposing”
 18 claim terms “have plain meanings that do not require additional construction”). Because there is
 19 no actual dispute, there is no need for court intervention, and these limitations need not be
 20 construed.

21 **VII. METHOD CLAIMS DO NOT REQUIRE A STEP ORDER**

22 Requiring all method claims to follow their step order is overbroad. Indeed, as a general
 23 rule, “[u]nless the steps of a method [claim] actually recite an order, the steps are not ordinarily
 24 construed to require one.” *Interactive Gift Express, Inc. v. Compuserve Inc.*, 256 F.3d 1323, 1342
 25 (Fed.Cir.2001) (citation omitted). Here, the Patents-in-Suit also expressly state that, “while a
 26 series of steps have been described with regard to FIGS. 7A and 7B, the order of the steps may be
 27 changed in other implementations consistent with the present invention.” ’681 Patent at 11:1-4;
 28 *see also*, ’777 Patent at 9:35-38. As one example of where re-ordering is possible, the steps of

1 '681 Patent, Claim 44 state:

2 receiving one or more of the fields of the packet;

3 predicting one or more other fields of the packet before the one or more other

4 fields are received;

5 generating a reply packet based on the one or more received fields and the

6 predicted one or more other fields; and

7 transmitting the reply packet.

8 While the “generating” and “transmitting” steps necessarily follow an order because the reply
9 packet must be generated before it can be transmitted, the “receiving” and “predicting” steps are
10 completely independent of each other. The “receiving” step addresses “fields of the packet,” and
11 the “predicting” step addresses “other fields of the packet.” No order is required, just that the
12 “received” fields are different from the “predicted” fields. Accordingly, this Court should not
13 require that the steps of each method claim must be performed in order.

14 **VIII. PREAMBLES ARE NOT LIMITING**

15 The preambles for the Patents-in-Suit are not limiting. In general, “the preamble does not
16 limit the claims” unless “it recites essential structure or steps or if it is necessary to give life,
17 meaning, and vitality to the claim.” *Am. Med. Sys., Inc. v. Biolitec, Inc.*, 618 F.3d 1354, 1358 (Fed.
18 Cir. 2010). Conversely, a preamble is not limiting “when the claim body describes a structurally
19 complete invention such that deletion of the preamble phrase does not affect the structure or steps
20 of the claimed invention” or when the patentee “uses the preamble only to state a purpose or
21 intended use for the invention.” *Catalina Mktg. Int'l, Inc. v. Coolsavings.com, Inc.*, 289 F.3d 801,
22 809 (Fed. Cir. 2002) (quotations and citations omitted). That is exactly the case here. The
23 preamble from the '681 Patent, Claim 1 serves as an example:

24 1. A method for predicting one or more fields of a packet having a plurality of

25 fields, the packet belonging to a set of packets, each of the fields containing data

26 representing a value, the method comprising:

27 This preamble merely sets the context and the intended use for the invention—which is, “for
28 predicting.”

1 As the Patents-in-Suit further explain, “[c]onventional processes dictate that a
2 communication device respond to such a set of bit-fields from such a set of received packets only
3 after complete reception of all such bit-fields from all the related packets. This leads to delays in
4 generation of responses, thereby, causing inefficiencies or, in some cases, unacceptable
5 performance.” ’681 Patent at 2:43-48; *see also*, ’777 Patent at 1:63-66. That is, in a network
6 where packets belong to a set of packets and each packet has a plurality of fields, the conventional
7 approach of waiting for the complete receipt of all fields from all related packets can lead to
8 unacceptable performance. In this context, the preamble states the intended use of instead
9 predicting packet fields, as delineated by the claim body, which in turn describes the structurally
10 complete invention. The steps of the ’681 Patent, Claim 1 complete the example:

11 receiving one or more of the fields of the packet;
12 analyzing a first value of at least one of the received fields;
13 predicting a second value of at least one other field of the packet not yet
14 received, based on a correlation between the first value and a property of the at
15 least one other field not yet received; and
16 processing the packet based on the one or more received fields and the predicted
17 at least one other field.

18 Indeed, deleting the preamble would have no effect, as the claim body independently recites the
19 structure or steps to accomplish the prediction.

20 Lastly, the only applicable exception to the general rule would be if the applicants relied on
21 the preamble during prosecution, which they did not. *See Catalina*, 289 F.3d at 808. Thus, the
22 preambles should not be found limiting here.

1 CONCLUSION

2 For all of the foregoing reasons, Ipsilium respectfully requests that the Court adopt its proposed
3 constructions of the terms genuinely in dispute, including a finding that none of the claim
4 elements are indefinite.

5
6 Respectfully submitted,

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